# Roadmap to a sustainable shipping industry

SSI
Sustainable
Shipping Initiative

Navigating the future

The *Roadmap to a Sustainable Shipping Industry* lays out the pathways and defines tangible milestones to be collectively achieved over the coming decades.

Initially developed in 2016 by SSI members in consultation with industry stakeholders and updated in 2020, the Roadmap consists of six vision areas, each with its own set of objectives, desired outcomes and interrelated milestones to be achieved along the industry's sustainability journey:
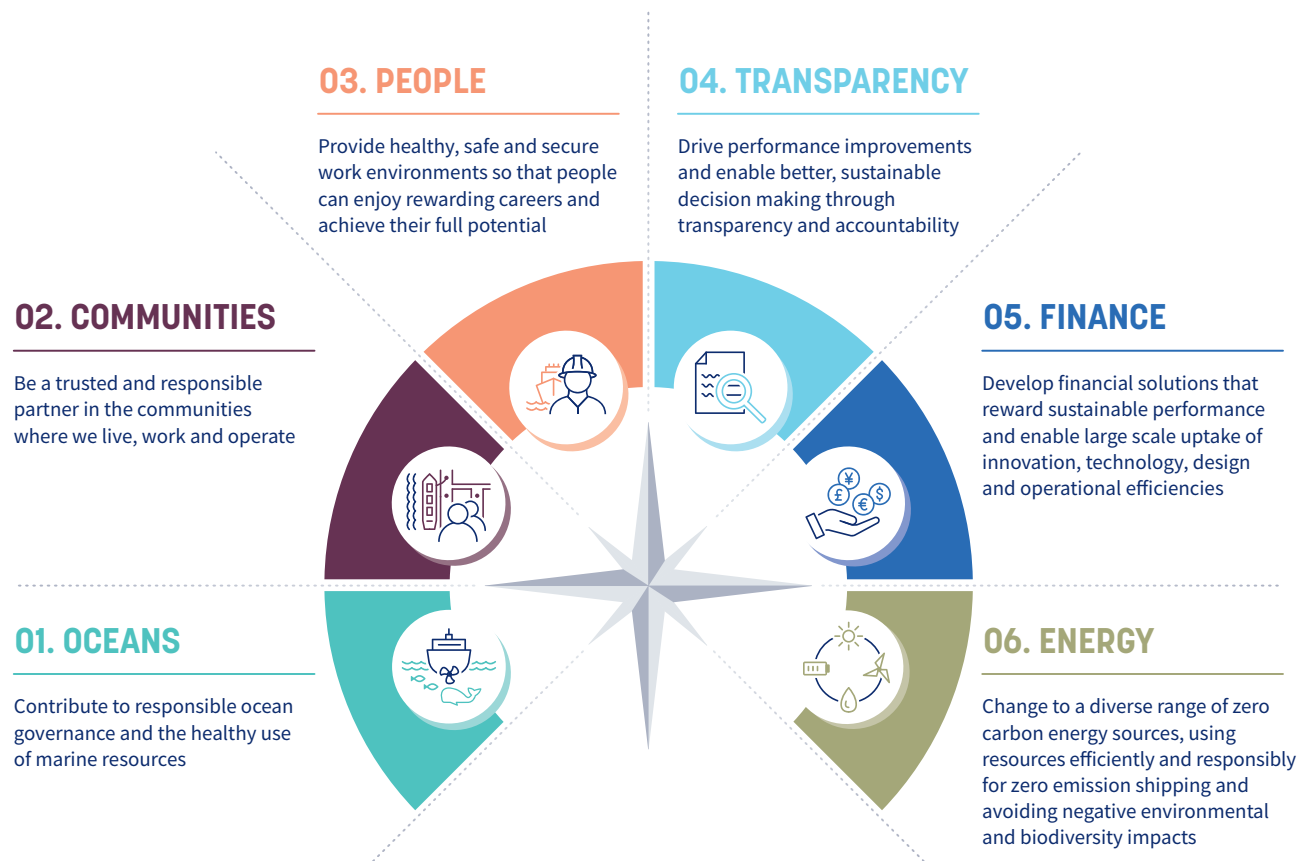
The Roadmap aims to bring to light how the broader environment in which shipping operates could change over the coming decades, kickstarting the debate on how the entire shipping value chain will respond. Each vision area is aligned with the Sustainable Development Goals, emphasising the important role of shipping's sustainability journey to the achievement of the UN's 2030 Agenda.

03. PEOPLE
Provide healthy, safe and secure work environments so that people can enjoy rewarding careers and achieve their full potential

04. TRANSPARENCY
Drive performance improvements and enable better, sustainable decision making through transparency and accountability

02. COMMUNITIES
Be a trusted and responsible partner in the communities where we live, work and operate

05. FINANCE
Develop financial solutions that reward sustainable performance and enable large scale uptake of innovation, technology, design and operational efficiencies

01. OCEANS
Contribute to responsible ocean governance and the healthy use of marine resources

06. ENERGY
Change to a diverse range of zero carbon energy sources, using resources efficiently and responsibly for zero emission shipping and avoiding negative environmental and biodiversity impacts

Using the Roadmap

The Roadmap to a Sustainable Shipping Industry is a resource for stakeholders across the shipping value chain, offering practical guidance to companies and organisations as they develop their sustainability strategies through a holistic approach and setting out the milestones to address present and future sustainability challenges.

The Roadmap is a mechanism through which the industry can hold itself to account through a regular review of progress against these milestones. As a working tool for all, the Roadmap is updated annually, ensuring the relevance and robustness of milestones as indicators to track industry progress.

01. OCEANS

Contribute to responsible ocean governance and the healthy use of marine resources

Objectives ▶

Establish a system of global ocean governance for a resilient and sustainable blue economy balancing access to, use and conservation of marine resources and space

Support development of a system of well-enforced marine spatial planning and marine protected areas

Theme ▶

Ocean policy and governance

Marine spatial planning

Milestones – 2020s

1-2020-1
Progressive increase in adoption of sustainable ocean policy and blue economy principles, and development of a roadmap to improve global ocean governance

1-2020-2
Standardised tools, resources and audits for marine spatial planning for regional and national waters developed, with research and pilot projects documenting and sharing good practice

Milestones – 2030s

1-2030-1
Shipping-related ocean governance is strengthened, with improved coordination on ocean impacts and issues and ramped up enforcement of laws and regulations

1-2030-2
Progressive improvements in marine spatial planning and increase in use of performance standards for marine protected areas

Milestones – 2040s

1-2040-1
Overarching global governance body is formed for all shipping-related ocean industries

1-2040-2
High seas and coastal marine protected areas are established and enforced, and marine spatial plans are in place

02. COMMUNITIES

Be a trusted and responsible partner in the communities where we live, work and operate

Objectives

Promote good port governance principles with well-defined standards, transparency and accountability

Engage and benefit the port, coastal and indigenous communities affected by shipping, facilitating dialogue among all community actors

Build sustainable and resilient port infrastructure and operations to enable energy efficiency, improve air and water quality and promote circularity

Theme

Port governance and standards

Port disclosure

Port, coastal and indigenous communities

Air and water quality

Circular economy

Milestones – 2020s

2-2020-1
Standards for the planning, design and development of new port facilities are developed in consultation with local communities

2-2020-3
Impacts of shipping on port, coastal and indigenous communities along shipping routes are mapped to develop solutions and ensure shipping traffic does not negatively impact communities, natural habitats and wildlife

2-2020-4
Sustainable and clean ports programs aimed at improving air and water quality are developed through an expanding global coalition of ports

2-2020-5
A circular economy ecosystem approach is increasingly adopted by ports, shipyards and port communities, linking all phases of the ship lifecycle, from ship design, building, operation to end of life including ship recycling

Milestones – 2030s

2-2030-1
Ports and coastal communities are represented in national and global port governance

2-2030-2
Transparency and reporting mechanisms for ports, on sustainability performance, are developed and implemented

2-2030-3
Corruption and piracy are eliminated through collaboration with communities

2-2030-4
Sustainable and clean ports programs are widely implemented and minimum standards for ports developed to reduce fatalities due to poor air quality

2-2030-5
Port and shipyard infrastructure is built in line with circularity principles, facilitating the repair, reuse and recycling of ships and ship components

Milestones – 2040s

03. PEOPLE

Provide safe, healthy and secure work environments so that people can enjoy rewarding careers and achieve their full potential

Objectives

Adopt labour and human rights standards across the shipping industry to improve safety, security, living conditions, and fair wages for people working in shipping

Employ best practice in leadership and employee development to attract people to rewarding shipping careers

Embrace diversity (including age, disability, ethnicity, gender identity, race, and sexual orientation) and facilitate equal, diverse and inclusive work environments

Theme

Labour & human rights regulation

Labour & human rights disclosure

Safety standards

Shipping careers

Diversity & inclusion

Milestones – 2020s

3-2020-1
International labour and human rights regulation related to onshore and offshore workers enters into force and is increasingly ratified

3-2020-2
Industry best practice, codes of conduct and contractual terms addressing labour and human rights risks across the ship lifecycle developed

3-2020-3
Framework for reporting on fatalities and their causes developed to drive improvements in safe processes on ships, as well as in ship building, repair and recycling yards

3-2020-4
Seafarers have access to high-quality training and career development support, including preparation for future impacts of autonomous ships

3-2020-5
Workers across all phases of the ship lifecycle, onboard and onshore, have access to union representation and their working and living standards are improved

3-2020-6
Best practices in diversity, equality and inclusivity shared and implemented for a maritime workforce where all workers are treated with respect and fairness

Milestones – 2030s

3-2030-1
Translation of international and human rights regulation into regional and national law(s) is achieved

3-2030-2
Labour and human rights issues publicly disclosed and incorporated in contractual terms and decision making across the ship lifecycle

3-2030-3
Reporting framework on fatalities and safety standards widely used across the industry

3-2030-4
Globally recognised minimum competence qualifications and career development paths onboard and onshore are adopted and implemented

3-2030-5
Companies actively enforce internal policies aligned with IMO minimum standards, eliminating discrimination, harassment and bullying, whilst safeguarding whistle blowers

3-2030-6
Equal access and entry to the shipping industry, regardless of age, disability, ethnicity, gender identity, race, and sexual orientation

Milestones – 2040s

3-2040-5
Onboard shipping careers rank equally with shore-based industries in terms of attractiveness and job satisfaction, career development, and impact on mental health and well-being

04. TRANSPARENCY

Drive performance improvements and enable better, sustainable decision making through transparency and accountability

Objectives

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Monitor sustainability performance and ensure continuous improvement through disclosure frameworks and rating schemes that go beyond compliance

Maximise shipping customers' leverage and hold the industry to account by demanding transparency and factoring sustainability performance into decision making processes

Theme

Sustainability performance

Rating schemes

Supply chain accountability

Data

Milestones – 2020s

4-2020-1
Industry and regulators apply strong financial, legal and regulatory pressure for shipowners to report on sustainability performance

4-2020-2
Transparency and traceability throughout the ship lifecycle increase the rate of reuse and recycling of a ship's equipment and components

4-2020-3
Fully transparent sustainability rating schemes are available for shipowners covering issues throughout the ship lifecycle

4-2020-4
Technological innovations are used to optimise supply chain sustainability, transparency and accountability

4-2020-5
Sustainability performance data is measured against agreed international standards and publicly disclosed

Milestones – 2030s

4-2030-1
Globally agreed minimum sustainability performance indicators and data published and widely used for business decisions

4-2030-2
Ship designers, builders and recyclers, equipment manufacturers and other shipping services compete on the basis of facilitating high sustainability performance

4-2030-3
Cargo owners, shipping finance and insurance companies actively use sustainability rating schemes covering issues throughout the ship lifecycle to make decisions

4-2030-4
Supply chain transparency across the ship lifecycle demanded by customers and factored into decision making processes

4-2030-5
Sustainability performance data is audited, validated and made publicly available

Milestones – 2040s

05. FINANCE

Develop financial solutions that reward sustainable performance and enable large scale uptake of innovation, technology, design and operational efficiencies

Objectives

Reward high sustainability performance through preferential access to capital and insurance

Assign monetary value to environmental resources to promote their responsible use and reduce negative impacts

Theme

Rewarding high performers

Natural capital accounting and ecosystem valuation

Milestones - 2020s

5-2020-1
Financial stakeholders incentivise transparency and public reporting on environmental, social and governance (ESG) performance, factoring this into purchasing decisions including new ship purchases and retrofits

5-2020-2
Sustainable shipping finance tools addressing ESG performance including sustainability-linked loans and green bonds are developed and implemented, facilitating R&D and technology investments

5-2020-3
Natural capital disclosure framework including natural capital accounting and reporting is adopted and mainstreamed across the industry

5-2020-4
Pilot methodologies developed to demonstrate the monetary value of goods and services generated by marine ecosystems

Milestones - 2030s

5-2030-1
Sustainability performance targets and comprehensive ESG reporting become the industry norm and are systematically factored into financing decisions

5-2030-2
Sustainable shipping finance tools are mainstreamed across the shipping sector, linking sustainability and financial performance

5-2030-3
Nature-related financial information widely available and used in shipping finance decision making
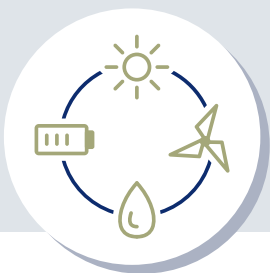
5-2030-4
Global methodology for ecosystem valuation adopted and factored into marine spatial planning negotiations and decision making

Milestones - 2040s

5-2040-1
Sustainability performance targets are developed and updated on a rolling basis in line with global climate ambitions

06. ENERGY

Change to a diverse range of zero carbon energy sources, using resources more efficiently and responsibly for zero emission shipping and avoiding negative environmental and biodiversity impacts

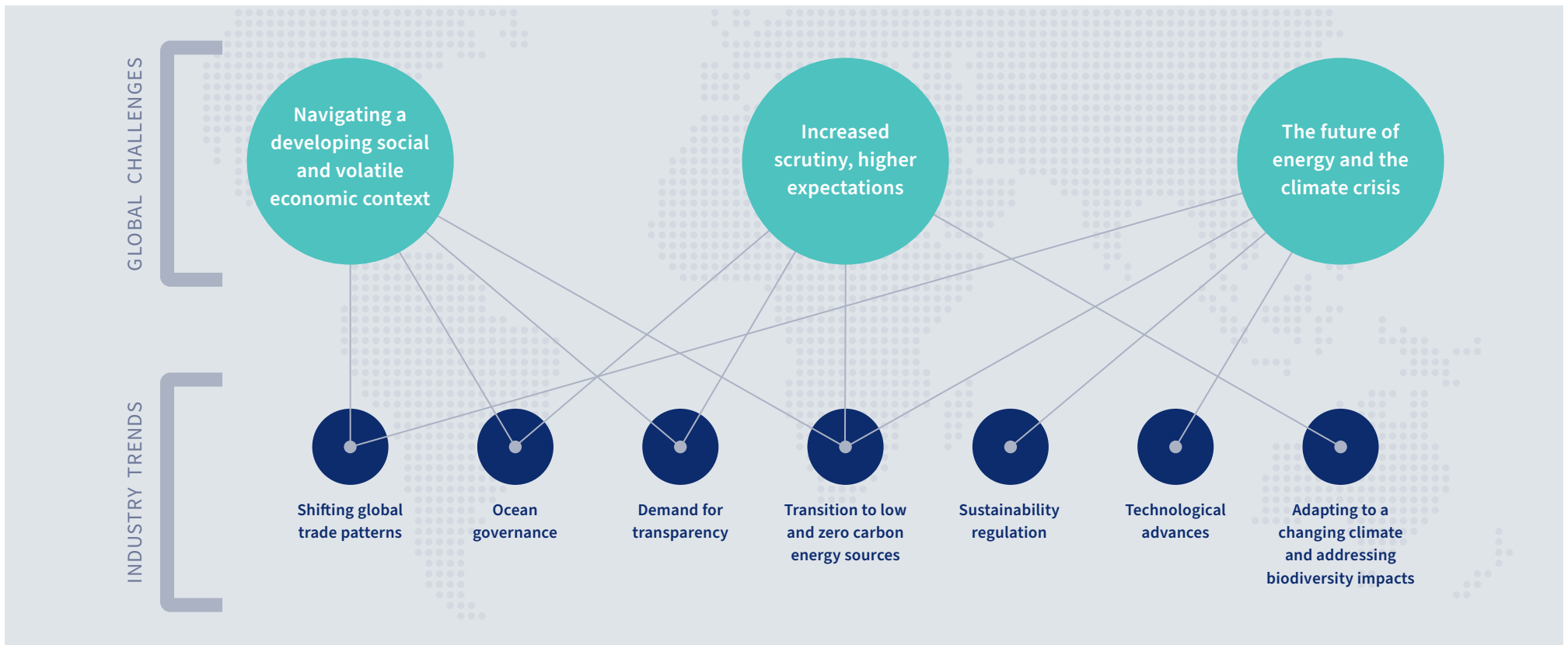| Objectives ▶	Theme ▶	Milestones – 2020s	Milestones – 2030s	Milestones – 2040s
Align GHG emissions reductions in shipping with global climate ambitions	Decarbonising shipping	**6-2020-1** Reduction in carbon intensity of international shipping to reduce GHG emissions by 60% by 2030 compared to 2008	**6-2030-1** Reduction in carbon intensity of international shipping to reduce GHG emissions by 90% by 2040 compared to 2008	**6-2040-1** GHG emissions are reduced to zero by 2050
	Emissions regulation	**6-2020-2** Short- and mid-term measures for GHG emissions reductions agreed and implemented	**6-2030-2** Mid- and long-term measures implemented and national regulation incentivising and ensuring the uptake of zero (or low) carbon fuels and technologies in place	
Pioneer improvements in energy efficiency across the entire ship lifecycle, adopting operational practices and innovative technologies to achieve supply chain efficiency	Efficiency improvements	**6-2020-3** Technical and operational energy efficiency measures, including the adoption of a circular approach and science-based targets, are introduced and business models for low and zero carbon shipping incentivised	**6-2030-3** Technical and operational energy efficiency measures are in place globally and considered the norm in the industry	
Facilitate a step-change in shipping's energy portfolio, transitioning to renewable and other zero (or low) carbon fuels and technologies	Sustainable fuels	**6-2020-4** Research, development and production of sustainable zero (or low) carbon fuels are scaled up, with guidance on their use and prototypes deployed for early adopters	**6-2030-4** Zero emission vessels using sustainable marine fuels are commercially available in the global fleet and widely adopted in newbuilds and retrofits	
		6-2020-5 Increased collaboration between the maritime and energy sectors to increase availability and demand for zero (or low) carbon fuels, accelerating the energy transition	**6-2030-5** Zero (or low) carbon fuels are competitive, including through global regulatory measures, with shipping a reliable source of demand	

Background

The Roadmap aims to address three global challenges and their interaction with seven industry trends – outlined in SSI's Case for Action, published in 2011, and reflected in our Vision – that in combination are expected to profoundly affect the industry. Its purpose is to bring to light how the broader environment in which shipping operates could, and should, change over the coming decades, kickstarting the debate on how the industry will respond.

Global challenges

- Navigating a developing social and volatile economic context
- Increased scrutiny, higher expectations
- The future of energy and the climate crisis

GLOBAL CHALLENGES

Navigating a developing social and volatile economic context

Increased scrutiny, higher expectations

The future of energy and the climate crisis

INDUSTRY TRENDS

Shifting global trade patterns

Ocean governance

Demand for transparency

Transition to low and zero carbon energy sources

Sustainability regulation

Technological advances

Adapting to a changing climate and addressing biodiversity impacts

The three global challenges and their interaction with seven industry trends

Industry trends

- **Shifting global trade patterns**

  Developing nations are growing in influence and economic activity, changing patterns of trade pathways and potentially shifting the balance of power. Trade may be impacted by the move to a more circular economy (based on sharing, leasing, reuse, repair, refurbishment and recycling); greater virtualisation of commerce; and localisation of supply chains. Global events including the COVID-19 pandemic have exposed the vulnerability of the global economy to challenges such as population growth, inequality, climate refugees, long supply chains and extreme events.

- **Ocean governance**

  Ocean governance has increased significantly in scope, rigour and complexity, and its future development will be critical for the industry. Robust systems of global governance that support international cooperation and frameworks could create a level playing field. However, the already complex tapestry of national and regional governance, industry codes of conduct and voluntary standards threaten to undermine these efforts, resulting in confusion and inertia across the global community.

- **Demand for transparency**

  Companies are responding to demands for better social and environmental performance while real-time monitoring has become feasible and affordable with technological advances – even at sea. The growing social movement towards disclosure pushes stakeholders across and beyond the maritime sector to report, monitor and manage their performance.

- **Transition to low and zero carbon energy sources**

  Growing concerns over energy security and shipping's decarbonisation have driven major changes in fuel types and efficiency as the industry explores how to radically decarbonise. Efficient technologies and alternative fuels, such as those produced from renewable energy and biomass are among those being explored; however, uncertainty remains as to which fuel(s) will emerge with the winning combination of availability (by location and quantity), sustainability and competitiveness. The role of natural gas in shipping's energy transition – whether as a fuel or as a primary energy source used in combination with carbon, capture and storage to produce synthetic fuels – remains uncertain. Risks of methane emissions during production, transport, distribution and combustion alongside the risk of lock-in to fossil fuel infrastructure cast doubt over the future role of natural gas.

- **Sustainability regulation**

  Public awareness, increased pressure for businesses to take responsibility, tougher laws and resource constraints are leading to demands for higher sustainability standards, with increasing global, regional and national regulation on issues such as emissions; air and water pollution; labour standards; value of biodiversity and fish stocks; and circular economies.

- **Technological advances**

  Technological advances are helping address many of society's sustainability challenges, benefitting from multi-disciplinary cooperation and innovation. For shipping, this means increased technology-based efficiencies including new materials, alternative energy technologies and improved ship design, building and recycling processes.

- **Adapting to a changing climate and addressing biodiversity impacts**

  The climate crisis is changing ocean currents and chemistry, threatening ports and coastal communities through sea-level rises, and increasing the frequency and severity of extreme weather events. More than half of all species are on the decline and wildlife habitats are being impacted by industry pressures. The case for climate action is clear, and shipping must play its part in addressing and mitigating the adverse impacts of the crisis while adapting to a changing climate.

SSI

Sustainable
Shipping Initiative